

REMARKS

Claims 1 to 13 were pending while claims 14 to 19 were withdrawn in the present application. Applicant has amended claims 5, 7, 10, and 12, canceled claims 6, 11, and 14 to 19, and added claims 20, 21, and 22.

Allowable Subject Matter

The Examiner indicated that claims 5 to 8 and 10 to 13 would be allowable if rewritten in independent form including all of the limitations of their base and intervening claims.

Applicant has amended claims 5 and 10 to independent form including all of the limitations of their base and intervening claims. Accordingly, claims 5 and 10 are now in condition for allowance. Claims 7 and 8 depend from claim 5 and are now in condition for allowance. Claims 12 and 13 depend from claim 10 and are now in condition for allowance.

Applicant has canceled claim 6 and 11, thereby rendering their patentability moot.

103 Rejections

The Examiner rejected claims 1, 2 to 4, and 9 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,808,296 ("McMonagle et al.") in view of U.S. Patent Application Publication No. 20030091076 ("Fischer") and further in view of U.S. Patent No. 6,618,406 ("Kaminishi"). Addressing claim 1, the Examiner stated:

With respect of claim 1, McMonagle shows Fig. 4 shows an input stage 46 receiving a first signal 42 and generating a second signal 52; a control circuit 36 generating a control signal 60; a limiting amplifier 56 having: an input signal receiving the second signal; a control terminal receiving the control signal; and an output terminal outputting a third signal (62, 64, and 34); a driver 32 receiving the third signal and generating a fourth signal in response to the third signal; and a light source 38 receiving the fourth signal and generating a light in response to the fourth signal.

September 26, 2005 Office Action, pp. 2 and 3. Applicant respectfully traverses.

Referring to Fig. 4, McMonagle et al. shows a detector sensor with a transmit (TX) path and a receive (RX) path. The TX path consists of an LED driver 32 driving an emitter 38. The RX path consists of a receiver 40 outputting a signal to a variable gain amplifier 44, which then outputs a signal to a variable gain amplifier 54. Variable gain amplifiers 44 and 54 are controlled by a microcontroller 36. Microcontroller 36 receives an output signal from variable gain amplifier 54 in the RX path and provides an input signal to LED driver 32 in the TX path.

As quoted above, the Examiner has cited variable gain amplifier 44 as the recited "input stage," variable gain amplifier 54 as the recited "limiting amplifier," LED driver 32 as the recited "laser driver," and microcontroller 36 as the recited "control circuit." However, variable gain amplifiers 44 and 54 are part of the RX path and cannot be part of the recited "laser transmitter," which is part a TX path. More specifically, variable gain amplifier 54 cannot provide an input signal to LED driver 32 as the recited limiting amplifier provides an input signal to the recited laser driver. Instead, microcontroller 36 provides the input signal to LED driver 32.

Further addressing claim 1, the Examiner stated:

McMonagle lack a laser and an input stage with a steady voltage swing.

Fischer teaches a laser and an input stage with a steady voltage swing (para. 0010-0011).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide McMonagle what is taught by Fischer to employ an alternative driven light source as a laser and to maintain the ability of the driver circuit to operate at high speed (para. 0011).

September 26, 2005 Office Action, p. 3. Applicant respectfully traverses.

"If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." *In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984); see also MPEP § 2143.02. The Examiner proposed to replace variable gain amplifier 44 of McMonagle et al. with an input stage 200 from Fischer. As can be seen in Fig. 5 of McMonagle et al., variable gain amplifier 46 provides an analog output signal proportional to the light detected by receiver 40. McMonagle et al., col. 5, lines 42 to 47. As can be seen in Fig. 3 of Fischer, input stage 208 provides differential output signals to differential pair Q0 and Q1.

Assuming arguendo that input stage 200 of Fischer provides steady voltage swings, McMonagle et al. would not work as intended if variable gain amplifier 46 is replaced with input stage 208. This is because the differential output signals vary between two fix values (i.e., steady voltage swings). The differential output signals cannot provide a proportional signal to the light detected by receiver 40. Accordingly, the Examiner cannot combine Fischer with McMonagle et al.

Further addressing claim 1, the Examiner stated:

However, McMonagle and Fischer lack the limiting amplifier outputting a signal with an improved rise and fall time and an amplitude characteristic.

Kaminishi teaches the limiting amplifier outputting a signal with an improved rise and fall time and a peak amplitude characteristic (col. 6, l.38-48).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide McMonagle and Fischer what is taught by Kaminishi in order to provide a controllable and shaped signal to the laser driver circuit for driving the laser properly.

September 26, 2005 Office Action, p. 3. Applicant respectfully traverses.

The Examiner proposed to replace variable gain amplifier 54 of McMonagle et al. with a pre-driver circuit 100 from Kaminishi. As can be seen in Figs. 4 and 5 of McMonagle et al., variable gain amplifier 54 provides an analog signal proportional to the light detected by receiver 40. McMonagle et al., col. 6, lines 44 to 49. As can be seen in the figures of Kaminishi, pre-driver circuit 100 provides one or both differential output signals to an output circuit 200.

McMonagle et al. would not work as intended if variable gain amplifier 54 is replaced with pre-driver circuit 100. This is because the differential output signals cannot provide a proportional signal to the light detected by receiver 40. Accordingly, the Examiner cannot combine Kaminishi with Fischer and McMonagle et al.

Claims 2 to 4 and 9 depend from claim 1 and are patentable over the cited references for at least the same reasons as claim 1.

New claims

New claim 20 depends from claim 1 and is patentable over the cited references for at least the same reasons as claim 1.

New claim 21 depends from claim 5 and is patentable over the cited references for at least the same reasons as claim 5.

New claim 22 depends from claim 10 and is patentable over the cited references for at least the same reasons as claim 10.

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Summary

In summary, claims 1 to 13 were pending while claims 14 to 19 were withdrawn in the present application. Applicant has amended claims 5, 7, 10, and 12, canceled claims 6, 11, and 14 to 19, and added claims 20, 21, and 22. For the above reasons, Applicant respectfully requests the Examiner to withdraw the claim objections and rejections, and allow claims 1 to 5, 10, 12, 13, and 20 to 22. Should the Examiner have any questions, please call the undersigned at (408) 382-0480x206.

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Respectfully submitted,



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